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MAY 3, 1926

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XX

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NUMBER
18

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AUSTRALIAN COMMERCIAL AVIATION

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AVIATION

MAY 3, 1926

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AVIATION

VOL. XX

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No. 18

The Norge in the Arctic

THE FLIGHT of the Italian was rapid sailing. Norge from Italy to Tromsø via Newfoundland and Norway marks the accomplishment of what many people considered the most notable and significant long distance sailing flights ever undertaken. In successfully completing the European section of the flight, the straggle has undoubtedly exhibited, to a certain extent, at least, her general seaworthiness, although the flight across Europe offers some complications and difficulties when compared with that section of the Amundsen-Elliott expedition undertaking which is shortly to be commenced upon, namely, the flight into the Arctic and across the North Pole.

An idea of the severity of the problems which will have to be faced in the attempt to fly the Norge in Arctic regions has already been indicated by the difficulties which were experienced in the flight just completed. It will be remembered that, both in the section of the flight from Dublin to Oslo and also from Oslo to Leningrad, the voyage had its share of no small extent as a result of the prevalence of fog and wind. In this respect, therefore, it must be recalled that, at the time at which Amundsen will be ready to make the attempt in the Arctic waters, that region will be entering upon its accepted foggy season and the difficulties of navigation under such conditions, serious as they have proved in the thickly populated areas of Europe, will prove far more serious under the storming conditions of the Arctic. With the accumulated experience which Captain Amundsen has of Arctic navigation, however, there is a very good chance of success from this standpoint.

The Amundsen-Elliott expedition is itself of an interest since it is the only one of the four expeditions slowly opening up or planning to open up in the Arctic regions this year, which is undertaking the problem of Arctic exploration with the aid of the lighter-than-air craft, rather than the heavier-than-air airplane. Since very early days have explorers considered the possibilities of reaching the two poles by air, Amundsen's attempt with the aid of the Norge is by no means the first in which this class of aircraft has been employed. As long ago as the year 1897 Aulick made a similar attempt, using a spaced balloon with the intent of drifting across the North Pole. This aerial proposal was never given heed of. Wellman, too, as recently as the year 1906, attempted to fly to the North Pole, using, in this case, an airship, as some experts consider it, though very much smaller than the Norge. Wellman, it will be remembered, returned without having reached his objective, but still confident that the achievement could, in this manner, be accomplished. Each of these expeditions, it is further interesting to note, started from the European side, at Southampton, from which point it is Amundsen's plan to set out in the Norge.

The Norge, an airship of 540,000 cu. ft. capacity, has a cruising range of approximately 5,000 miles, which is about

double the distance which it will be necessary to cover in the proposed non-stop flight across the Arctic. The distance from Southampton to the North Pole is 600 miles and that from the Pole to Alaska, 1,200 miles, which means that the Norge will carry a fair reserve of fuel for the entire flight, which should be successful so long as sustained adverse winds are not encountered or an undue quantity of ice and sea ice collects upon the envelope of the ship, which is said to be one of the possibilities in the case of airship travel in the Arctic region.

On Engine and Plane Development

THE FIGURES which are being published in AVIATION of the advance made in 1925 by commercial and amateur pilots show that there has been an enormous development of aviation activities in this country. This flying has been greatly fostered by a cheap and extremely reliable power plant. While the OX series engine far more than a modern engine, it is not concerned in fuel consumption and it has made possible the development of a series of new commercial planes which have proved that they are practical and are easy to maintain. The Navy development of the 200 hp. aluminum engine has enabled plane manufacturers to obtain, at a reasonable price, an engine which now has been fitted to a large number of new types of commercial planes and, in fact, has made many of these types possible.

The building of an experimental machine requires only a small amount of shop equipment, most of the work can be done by hand. The building of an engine, however, requires a vast amount of expensive and complicated machinery, all of which must be adapted and most in order to produce a single engine. The engineering and "working out the bugs" also seems to be much more difficult in the case of an engine. As a result there have been far fewer new types of engines built than there have been planes. To sell an engine at a reasonable price, it is necessary to produce it in quantities. Unfortunately there is little or no civilian demand for a new type of engine until planes have been designed to use such an engine successfully. This takes a long time and there are few engine manufacturers who are in a position to carry the development expense over such a long period. The government alone can order new engines and induce planes to fit them, and it is probable that, in the future as in the past, commercial aviation engines will be derived from engines originally designed for military use. As matters stand today, there is only one post war aviation engine, except in the very expensive high speed class, around which a commercial designer can build a plane. There are several small civilian engines under way and if the government is sincere about fostering the development of civilian aviation there is no way which they could do more good than by placing a quantity order which would enable the manufacturers to produce these new engines at a reasonable cost.

fort and freedom from excessive noise and wind made them very popular with passengers and made air travel not only the most speedy but the most comfortable mode of level or short routes.

The two DeHavilland bi machines arrived on the service with ease, and, in October last, the latest commercial DeHavilland bi development machine was placed on the route in order to meet the heavy demand for seating accommodations between Long Beach and Charlotte. This machine has given complete satisfaction and carries far passengers and luggage at the same running cost as the D2L bi machines, which carry three and the original machines which carry only two passengers.

The company's fleet now consists of one DeHavilland 36 four-passenger machine, two DeHavilland bi three-passenger machines, 1 Bristol Fighter two-passenger machine, 1 DeHavilland 4 two-passenger machine, 1 B-2C bi two-passenger machine and one Avia, two-passenger machine.

Headquarters

Long Beach is the headquarters of the company and the central airbase is situated 1½ miles from the town. The base, which will have one machine, is a fine industrial steel and iron building 137 ft long, with a 50 ft apron. The floor is of concrete and wings have been built on to each side and rear of the building to contain the steering and engine maintenance repair departments. Smaller buildings are situated at the southern terminal, Charlotte, and at Glenshaw, capable of housing three machines each.

The staff is as follows: Hudson Pyle, managing director, W. A. Bond, airbase manager, S. D. Miller, secretary. The flying staff at the Quanta is as follows: pilot, Hudson Pyle, P. H. Moody, J. J. Bond, A. N. K. Johnson, staff, 2 mechanics and riggers, 2 woodworker carpenters and 3 inspectors.

Mileage Statistics

The company's machines, until Jan. 31, 1935, had flown a distance of 225,123 miles, this record mileage being attained without any injury to staff or clients of the company. The record follows:

	1st year	2nd year	3rd year
Mail route passengers (1934)	180	385	384
Freight	22	98	168
Freight	30	224	203
	288	633	689

Parcels, number	62	345	438
Weight	20,875 lbs.	1,597 lbs.	4,654 lbs.
Letters	22,895	11,590	15,784
DeHavilland trips completed	59,515	109,6	169,6

The short campaign of operations will show how the passenger time is steadily growing as people have more confidence in air travel and realize the advantages which can be gained by the saving of time.

Advantages of Air Travel

Some of the savings in time effected by passengers, freight and letters shipped over the air route are remarkable, and, in almost every case, reach at least 24 hr. A passenger, for instance, traveling from Charlotte to Long Beach, takes the journey by rail in 14½ days at a cost of £13.91.9 (roughly \$54). By air, the same trip is accomplished in 4 hr. at a cost of £8.19.8 (roughly \$30). A passenger between Long Beach and Glenshaw, by sea and rail, takes the trip in 3 days at a cost of just over £2. The journey does the journey in 2½ hr. at a cost of £18 (roughly \$74). Two days are saved by the traveler by air between Glenshaw and the southern cities, and the money in time between the Canadian cities. The Sydney service is a fine proof of the service. The War is expected to have some bearing on opening the specially published Ferry Schedule, as business men are now able to make a visit and return to their office without any interruption and without fear of being held up through road conditions.

Aerial Mapping in Alberta

One of the outstanding features of aerial photography is its wide field of application as to aid in the development of the natural resources of the country. This is illustrated by the proposed aerial mapping of Alberta, Canada, during the past year. In this province, among other things, over 4,000 square miles of territory were successfully photographed. The work was carried out from the Rock River air base by the Topographical Survey, Canadian Department of the Interior, in cooperation with the Royal Canadian Air Force, and consisted principally in obtaining vertical overlapping photographs from a distance of eighty or two miles.

The major portion of the work done was in connection with land classification, forest investigations, soil mapping surveys in the district between Edmonton and Athabasca covered by the Western sheet of the National Map of Canada, and that covered by the Royal Canadian Air Force in the West. The province's own maps showed that, with the photographs available, the mapping work was so facilitated that the operators could confine their attention almost entirely to the examination and interpretation of the sets and make corrections, thus greatly expediting the work at the same time obtaining more reliable results.

Photos Mounted for Use

The photographs showed in great detail all the features of the ground, the most trees and boundaries of bush lands, swamps, rocky areas, the masses of rivers and streams, their meandering windings and the roads and other features of importance. These photographs were mounted and assembled in book form for each township and on maps were marked the boundaries of each quarter-section, so that the work was taken right into the field and the operators made their notes on the photographs in proper position from ground study.

The party, without the use of the photographs in previous years, was able to estimate and map on the surface 50,000 acres each section. With the aid of the airplane photographs, the party completed 1,170,000 acres, at an estimate of 66 sq. mi. per section. Not only were the results more complete and more detailed, but the photographs are still available for reference similar service to the geologist, farmer and others interested in the development of the district.

Assisting in Road Prospecting

Aerial operation of considerable importance was the photographing of the Saskatchewan River valley and adjacent country from west of Edmonton eastward to its junction with the Clearwater river. These photographs were required for the purpose of studying and correlating the coal seams of the district and making other geological investigations. The point assistance rendered to the geologist by these photographs has been reported by the Allan of the University of Alberta under whose direction the investigations were being carried out.

The other work done in this province consisted principally of photographing the Buffalo Park at Winnipeg. This was done in order to obtain aerial views of the geological and topographical features of the park for administrative purposes.

The success of these operations started out in conjunction with the general investigations given reference of great assistance in geology, forestry, fisheries, and other connected with the development of the resources in making them to contribute their energy to the investigations in the field, having at the same time a detailed and comprehensive view of the whole area under consideration. The elimination of the expense, having only the interpretation and study, should greatly expedite the investigation.

An extremely interesting and significant feature in connection with the above work is the fact that the efforts of the Air Force were successful in making the entire district in parallel strips ninety miles long with very few gaps and no overlapping. This is a very important achievement, a large portion of which is in forest reserves hitherto unexplored.

Miami-Jacksonville Air Mail Opened

Large Quantities of Air Mail Characterize Opening. Extension of Present Florida Mail Route to Atlanta to be in Operation by June 1.

ON APRIL 1, the Florida Airways, which is headed by Mr. Fred M. Chambers, started operations on their route from Miami to Jacksonville, Fla., via Fort Myers and Tampa. On the first day 24,000 pieces of mail were carried, netting \$1,800. Since that time the volume has been fairly heavy from Miami to southern points, with good indications of a steady increase from the northern states into Florida in view of the publicity and aid established and the public makes the value of the line. On June 1, the line will be extended from Jacksonville to Albany, Ga., and is expected to greatly increase the amount of business. The

line will carry passengers and express in addition to air mail. Between Miami, Fort Myers and Tampa the Florida Airways Corp. is using the Ford Stout all-metal monoplane. On the Tampa-Jacksonville run the company has a fleet of Curtiss biplanes with Wright Wheland engines and also Travel Airs with OX53 engines.

The Florida Airways has a very fine fleet of mail planes. Conditions in Florida are excellent from the flying point of view as no transport is very congested and view at its best, while air conditions are very desirable as there is no fog and few bad storms.



F. R. Photo

Major Percy P. Pyle landed the first lot of mail on the Florida Airways and plane for Jacksonville. Left to right: L. P. Doyle, Manager of the Board of Trade, City Commission, Fort Myers, and Major Percy P. Pyle of Miami. The airplane is a Curtiss biplane equipped with a Wright Wheland engine.

Australia Reports Progress in Civil Aviation

Very satisfactory progress has been made in civil aviation since the inception of passenger and mail transportation in Australia.

The first important service was established between Perth and Derby, Western Australia, on Dec. 6, 1931, by the West Australian Airways, Ltd. Since that time 5,598 machines flights have covered 484,676 passenger miles in 7,249 hr. of actual flying. In the past four years, 8,228 passengers have been carried over single stages, while 620,000 letters and 27,027 lb. of freight were handled. In 1935, 1,055 passengers, 336,336 letters, and 12,649 lb. of freight were carried. The Queensland and Northern Territory Airways Service, since its opening on Nov. 2, 1932, has made 2,297 flights,

involved 215,061 machine miles, carried 2,331 passengers, 46,000 letters and 22,609 lb. of freight over single stages. In 1935, 1,342 passengers were carried, and 10,000 letters and 2,534 lb. of freight were transported over single stages.

The Larkins Aircraft Supply Co., Ltd., also operates a passenger service which was opened June 3, 1935, operating between Adelaide and Cooberdine. Two additional routes, from Melbourne to Hay and from Melbourne to Brisbane, 1935, were opened later. These services were substituted for the first on July 21, 1935. On the first route, from June 3, 1935 to July 18, 1935, 115 passengers and 3,070 letters were carried; on the second, from July 19 to December 31, 1935, 398 passengers and 1,044 letters were transported. Freight has also been carried but figures for that traffic are not available.

The Pander Type E Sportplane

An Interesting Two-Place Sportplane with a Radial Engine and Good Flying Qualities.

THE PANDER Type E biplane is a small two-place machine built in Holland by the manufacturer of the somewhat well known 20 hp. Pander lightplane.

The plane is, in general, of wood construction, the upper wing being a semi-rigidly built, section structure with a span of 33 ft. and a chord of 3 ft. 3½ in. The wing section is constant between the single V struts with a maximum thickness

As in several previous, the wing covering is fabric, with the exception of the center section which is completely covered with plywood, as is also the entire leading edge of the wing. The lower wing, which is straight in the lower part of the fuselage in a comparatively small structure with a span of but 16 ft. 4 in. and a chord of 2 ft. 0½ in. It is entirely constructed around a single main spar of box section, having a

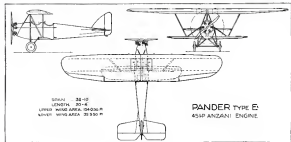


The Pander Type E two place plane

area of 12 sq. in. From the struts to the wing tips, the wing tapers in chord and thickness, making the depth of the tip section only 4 in. This wing is formed of two box construction beams of spruce and plywood structure. The wing ribs are also constructed of plywood with paper stiffening strips.

width of 8 in. and a thickness of 3½ in. The wing is braced to the upper wing by means of outward sloping V struts of aluminum steel tube and also similar V struts extending to the upper longerons in the fuselage on each side.

The tail plane of the Pander Type E is built in a similar manner to the wings incorporating the use of plywood to a



General arrangement drawings of the Pander Type E.

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A view of the Pender light plane

large extent and is based on the under surface of the fuselage by single strutting steel tubes. In the case of the main, welded steel tube construction is employed, with sheet steel ribs. The undercarriage, with the tail skid attached to it, operates in bronze bags. The shock absorbing qualities of the tail skid are obtained by means of a spiral steel spring.

Turning to the fuselage, this has an oval section and is constructed in very much the same manner as that of the Pender light plane. The structure consists of four spars, longerons and a plywood covering. This structure applies only to the rear part of the fuselage, behind the rear seat. The forward part is of welded steel tube with this skinless sheet covering. Two seats are provided with full control, the rear cockpit being for the pilot.

The Power Plant

The engine is a 55 hp. Anzani 6 cylinder radial air-cooled engine provided with a special starting magnet. The engine mounting is extremely simple and designed with the possibility in mind of a more powerful radial air-cooled power plant being substituted for the Anzani. Two gasoline tanks are located in the outer surface of the wing, with a capacity of 14 1/2 gal. giving, it is claimed, a radius of 300 miles to the machine. Lubrication is supplied to the engine from a special tank located between the forward seat and the engine itself, supply being through flexible copper tubing, so it is clear that from the fuel tank.

As will be seen from the accompanying photograph, the undercarriage is of conventional design and, in general, the entire plane is without very outstanding features, with the exception of the very large upper wing in comparison to the span of the lower wing. It is interesting to note that Valparaiso

is employed very extensively in the finishing of this plane and, in fact, the very excellent finish is said almost exclusively by H. Pender steel bones.

Characteristics

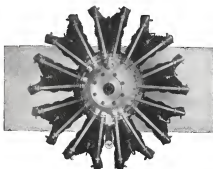
The general details are contained in the following table:	
Span	33 ft.
Height	8 ft. 7 in.
Length	20 ft.
Wing area	144 sq. ft.
Area of upper wing	33.7 sq. ft.
Area of lower wing	35.5 sq. ft.
Total area of wings	109.2 sq. ft.
Area of tailplane	21 sq. ft.
Area of elevator	18.7 sq. ft.
Area of fin	3.9 sq. ft.
Area of rudder	6.5 sq. ft.
Weight empty	702 lb.
Total weight with 4 hours fuel	1180 lb.
Maximum speed	75 m.p.h.
Maximum climb	30.5 m.p.h.
Climb to 2000 ft.	7 1/2 min.
Cruise	70 m.p.h.
Load per sq. ft.	11.60 lb.
Load per hp.	20 lb.
Engine	Anzani
Normal hp.	55
Maximum hp.	68
Revs., at normal hp.	1500 r.p.m.
Revs., at maximum hp.	1800 r.p.m.

standard altitude pressure coefficient in order to obtain information on its operation and performance. During its investigation of the behavior on the operation of the engine of various types of air-dust connection between the supercharger and the engine, the supercharger was subjected to considerable rough treatment, which it endured very well, so that it comes apparent that the supercharger could well endure various handling by the proper supercharging of the air-dust system, the engine would operate at all speeds as smoothly and free from vibration as the normal engine.

From these tests it seems evident that the Roots blower compares favorably with other compressor types used as air-dust engine superchargers and that it has several features that make it particularly attractive for such use.

A copy of the report, No. 236, may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

THE "WASP"



The "Wasp" marks a turning point in engine types for "fighting" planes. For the first time the dry weight of an air cooled engine compares favorably with that of the most efficient water cooled types. Its installed weight per horsepower is considerably less.

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Supercharger Tests

A report, published by the National Advisory Committee for Aeronautics and entitled, "Description and Laboratory Tests of a Roots Type Aircraft Engine Supercharger" by Marston Ware, has just been issued.

This report describes a Roots type aircraft engine supercharger and presents the results of some tests made with it at the Langley Field Laboratories of the National Advisory Committee for Aeronautics. The supercharger and its tests were constructed largely of aluminum, weighed 88 lb., and was arranged to be operated from the rear of a standard engine crank at a speed of 115, engine crankshaft speed. The colors of the supercharger were specified in form and were 11 in. long and 5 1/2 in. in diameter. The displacement of the supercharger was 0.8 cu. ft. of air per revolution of the rotor.

The supercharger was tested in the laboratory, independently and in combination with a Liberty-12 engine, under

Radio in the Spain-Argentina Flight

For the following flight on the employment of radio in the Spain-Argentina flight carried out by Comdr. Ramon Franco and Capt. Ruiz de Aldeia of the Spanish Air Service in a Dornier Wal airplane recently, *Aviation* is indebted to its Spanish correspondents, Flight—Espana.

Radio apparatus now forms a very important part of the equipment of aircraft used for combatant service or for the commercial purpose, and not the least of the many factors contributing to the successful trans-Atlantic flight of Comdr. Ramon Franco, the Spanish pilot who recently flew from Spain to Argentina, was the use of the radio apparatus installed on the Dornier Wal airplane. The Dornier Wal airplane is mainly constructed of metal, and was equipped with a Marconi standard type A.D.6 telegraph-telephone set and a Marconi direction-finding (D.F.) set.

The metal construction of this machine, while assisting considerably in the reduction of magnetic disturbance, adversely affects the reception power of radio-sets, or any other loop aerial. In the usual wood and canvas construction, no difficulty is presented in installing a complete efficient loop aerial. In all-metal machines it is, however, necessary to arrange the D.F. loops as far as possible from closed-circuiting paths. The leading factor for reception of the radio-sets aerial, as controlled by the area factor of the fore and aft loops, which should be as great as possible. The area factor, however, are limited by the fact that the loops and supports must be able to withstand considerable wind pressure, vibration and shocks, and the difficulty of designing a multi-turn loop supported from all corners of metal increases disproportionately with the number of turns. To meet these conditions, therefore, a special type of loop aerial was fitted on the Plan Ultra, and the Marconi standard stretch D.F. receiver was altered to increase the working range of the equipment.

The Antennae

The fore and aft loops consisted of two single-turn loops supported on struts and arranged symmetrically on each side of the hull, great care being taken to avoid any anti-direction effects due to the presence of large masses of metal. The fore loop was contained in a strut and the total area being approximately 250 sq. ft. In order to obtain equal reception with the wing strut, a single turn loop was mounted in the place of the wing. The two struts show the position of the fore and aft loops and the wing loop. The fore and aft ends of the loops were connected by a length of cable leading to the receiver's position near the pilot.

To increase the working range of the direction finder and to compensate for the smaller reception power of the loops, it was found necessary to increase the overall magnification of the standard current direction finder receiver. This was accomplished by the use of a 15-type amplifier (which had been used for similar receiver) and a sub-amplifying tube. The Marconi standard type D.E.V. tubes and two standard type D.R.Q. tubes, taking a total filament current of 544 at 3 volts, were used. The anode voltage for the receiver was supplied by a 90-volt dry cell battery, and the filament was run off a transformer battery.

The radiofrequency and high-frequency tuning coils were of the standard type supplied with aircraft equipments, and cover a wavelength of 62,000 meters.

The equipment was calibrated on wavelengths of 600 and 800 meters, and the quadrantal error curves were well within the limits required for navigation purposes.

Results With D.F. Apparatus

Reports from Captain Ruiz de Aldeia, the navigator who took the D.F. bearings during the flight, show that bearings were obtained at a distance of 700 km. (324 miles) from Las Palmas, and such was the accuracy of the machine that the course was directed solely by the aid of the direction finder during this stage of the flight. When arriving Las Palmas visibility was very poor, but the bearings from the shore stations enabled the navigator to maintain a direct course to his destination. The reader will, no doubt, be interested in the following extracts of a letter sent by the navigator, Capt. J. Ruiz de Aldeia, from Las Palmas to the Chief Engineer of the Compañía Nacional de Telégrafos via Hilo, Spain—

January 25, 1936.

"At 20 km. from the Spanish coast beyond the island which was 1200 m. over sea, and extended to Canary Islands. Therefore, at the rate of flying below the clouds layer, we could not be able to do astronomical observations, and over the layer we would not see our directions produced by the wind."

"Have the first bearing obtained, which gave Las Palmas at 7° stretched until the end of the flight, so work was continuous as we going up the difference in angles of Las Palmas and Tenerife. Briefly, since 11 a.m. we were directed solely by the D.F. I arrived on the coast observing them by the information of the two bearings, several points, and none was separated more than 5 miles from the ideal route."

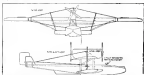


Diagram of the radio direction finding aerial on the Dornier Wal.

"As we were approaching we heard all steamers in the vicinity of the island, and all of them gave us a range bearing as a whole, as the steamers were scattered around the island. At 3 p.m. we perceived suddenly a very big island on the port side, and Franco decided to make for it. I told him that the island in question was Lanzarote, and as he apparently was not convinced, I gave him the bearings obtained by the D.F., and they were giving preferentially the bearings we separated from our route. Then Franco, convinced, returned to the north, and we continued without seeing land until after 10 km., when we saw close to us an island. We passed through a cove and the Puerto de San Lorenzo (Las Palmas) was at sight. We landed, and remain here on account of the heavy sea, which does not allow us to leave, although I hope we shall proceed the next tomorrow."

The Communication Radio Equipment

An attempt to communicate by means of the standard type A.D.6 set was made for the transmission and reception of ordinary airmail messages. The successful components of both transmitter and receiver are mounted in one unit. The transmitting system comprises an aerial tuning inductor, a variable coils, control knob, and a sub-amplifier tube. The receiving system comprises an aerial tuning inductor and a five-tube amplifying detector.

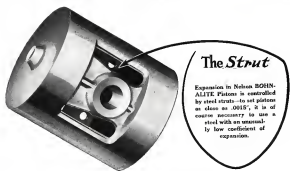
The tubes used on the transmitter was two Marconi standard type M.T.3 and one M.T.5 with a total filament current of 7.6 amperes at 4 volts. The receiving tubes are two type T.25 and three type Q.8, with a total filament current of 3.5 amperes at 5 volts.

The wire-range of the transmitter and receiver is continuously variable between 400 and 1,200 m.

The series of signals emitted by means of hydraulic cable enabled the operator to change over the each motor switch, or to effect small adjustments in the tuning of the circuits.

A dual control equipment, comprising two microphones, two pairs of headphones, and two coupling units, enabled either the pilot or navigator to use the wireless set or to converse with each other.

Power for the anode circuits of the tubes and for the filament light-lamp, batteries were supplied by a wind-driven generator developing 100 watt-hours at 1,200 volts and 6 amperes at 7 volts. A trailing aerial approximately 200 ft. long was used for the set.



The Strut

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The Udet Kondor Airliner

A New German Monoplane Airliner Incorporating Novel Engine Arrangements.

HERR UDET, one of Germany's sons, opened up an airplane factory near Munich, Germany, shortly after the Armistice. Due to the limitations imposed on Germany by the Versailles Treaty, the first ten planes which his factory designed and built were of small size. The first known was a two-seater sport plane of the low wing type and a powered monoplane.

Now that many of the treaty limitations have been lifted, Herr Udet has brought out an interesting four-engine eight passenger plane which he calls the Kondor. The plane is built entirely of metal and the four engines are hung under the single externally braced wing. The engines are of 100 hp. each and of the reversed type. They drive pusher propellers through a shaft extending to the rear of the fuselage. This arrangement probably gives an excellent air flow over the wing but the long shafts add complication and weight.

The four small engines, the outer pair of which are well out on the wings, meet midway the wing to counterbalance stresses on landing, and in the air the lack of concentration

of flight were successful but no real performance figures are available and it will be some time before its potential value is ascertained.

The Kondor has a thick tapered cantilever wing with a span of 62 ft. 1 in. The wing is made in three pieces, a center section which fastens to the top of the fuselage and only



The engine arrangement in the Udet Kondor.

extends out a few feet on either side and the two wing extensions which are bolted onto the center section. The wing spars both in thickness and in plan form, the rounding off of the wing tips make especially noticeable. The wing section is the Prandtl No. 409.

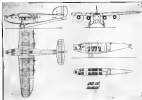
The wing is entirely built of metal. The bracing consists of two struts with the usual spacers and cross wires. The ribs are rather close together, especially under the center section and the wing is covered with flat metal sheeting.

The fuselage extends somewhat far out beyond the wing to front and the pilot sits in the very nose, while there are seats for two crewmembers on either side and, in the rear of the unit. The passenger cabin is very spacious and has seats for eight persons. There is also a baggage compartment and a toilet provided.

The tail surfaces are conventionally large and unobstructed, the vertical stabilizer being adjustable.

The Udet 11 is fitted with four radial six-cylinder Siemens

Continued on Page 476



A diagram of the general arrangement of the Udet Kondor of which must make the machine somewhat heavy in construction. Also, it can be brought out that a four-engine plane is less reliable than a three-engine plane unless it can fly on any two engines. In spite of all these possible difficulties, the plane is original in design and worthy of study. Its trial



G.3 Photo Press

The Udet Kondor airliner. Note the two radial engines mounted under the wing.

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delivered from the plane. As soon as the new engine is installed it will be used on the Hesperia field.

Bill Meyers of Kankakee, Ill., one of Smith's students, flew down to Florida last week. Joe Wright, located at Altamonte, had been studying on tests from Tampa to Altamonte. Mr. Wright has a Standard which Lee Smith built and he also received his instruction here.

The six wall planes have been from Dr. Lewis several times looking over the field. The Chamber of Commerce is cooperating with the Post Office Department in obtaining a permanent field, which will take the place of the old one.

They boys don't get excited if you have a government inspector examine your old plane as Lee Smith experienced last week. One day's stop was supposed to be enough to inspect Smith's logs and told him that he was Captain C. from Washington, showing a badge which was the only one he had. After a complete examination of wood work and things he checked up on the logs and told Smith and the rest of the boys of the shop that the wings must all be removed as 15 months was the limit on them and 12 months the limit on a motor. He was gone himself away when he completed about his year's study and rest of Smith would patch up these much later he heard that it could be possible to put an OK on the old logs for the price of new ones.

After investigating about this young man, it was found out he was not Captain C.—and did not happen to be an aircraft inspector. He also had a vision of his life possibilities and when he came back to the shop the next day he was greeted by the police force. However, I don't think he will bother around the shops any more for a while.

Crissy Field, Calif.

By R. P. Baker

The Pacific Air Transport will commence operations soon. The company has been making courier trips in the last of these two Ross companies. The first mail trip will be

about May 1. If there is a prattler flying combination then Mr. Hyde and his crew are not happy, I have yet to see it. Judging from Mr. Hyde's description, the plane must have an excellent performance with its 200 hp. Whetstone engine.

The Army has new Learning Amphibian about same to go to front recently. The pilot, while making alternate land and water landings evidently became confused and landed on terra firma instead of down the beach. Fortunately the long projecting "nose" of the plane kept it from leaving over and the only serious casualty was a new nest of sand on the bottom of the bay. Judging from the hole the Amphibian made in the field, Mr. Learning should be using his product on a river, indeed.

Crissy Field has received two new Douglas C-2 planes. Their waggly performances and the several knots air before them. They were used very interesting after actually seeing the older O-1's broad canvasly carried around by their pilots.

The Army pilots have been getting in some practice flying at Stevens lately. They always seem to come back full of ideas. (I mean the ideas.)

In spite of the fact that the field is alternately a sea of mud and a sea of dust, the Navy has been doing a lot of flying. They have an excellent record in this.

San Francisco is still searching for a suitable landing field. Some of the proposals are here from the Florida land lots (under water).

Boston, Mass.

By F. H. Allen

Capt. Henry M. Hagan, Air Service, has been ordered by the Boston Airport from General Robert H. Brown, Jr. Captain Hagan was here in October, 1935, in 1935, graduated from the University of California in 1915, subsequently receiving a law degree. He is related in the Air Service to the beginning of the World War and went overseas in January,

1918, where he served as Commanding Officer of the 96th Observation Squadron. He then became commander of the 252nd Observation Squadron and, in January, 1935, was transferred with the Army of Occupation returning in June of that year to the United States. In September, 1935, he was detailed to the office of the Chief of Air Service at Washington where he remained until August of 1932, when he went to Langley Field as a student in the Air Service Technical School and, upon graduation, became commander of the Technical School Detachment where he remained until ordered to Boston. Captain Hagan, who is a brother-in-law of Maj. R. H. Brown, former air officer of the First Corps Area, has taken a house at 63 Brookline Road, Brookline, Mass.

Cy Colwell, chief of the Boston Airport Group, has returned to Boston after a several weeks' trip through the South. This included stops at Harrison, New York; Philadelphia, Baltimore, Washington, Newport News, Norfolk, Fayetteville, N.C.; Charlotte, N.C.; Langley Field, Va.; and Fort Meade, S.C.

Consistent with the return of Cy, Dan Doyle, president of the Boston Airport Group, returned to Boston after a trip to Florida. He reported great creative activity in the South.

Mayor Nichols, who petitioned the State Legislature, asking that the City be authorized to spend money for the improvement of the Boston Airport, was denied extension of the rules which would have been necessary to know had the bill come before the Legislature this session. The bill was drawn up after Mayor Nichols had been notified by the Corporation Council of the City that the item of \$250,000 included in his annual budget for the Airport was not a legal expenditure of City money. It is believed that this bill will be reintroduced at the next session of the Legislature and should immediately go through.

The Ways and Means Committee of the grand and general court of the Commonwealth of Massachusetts do not know what they named on Tuesday of last week when Cy Colwell, assistant city manager, appeared to speak before them.

on the left providing for the calculation of the time at the Boston Airport. Various other matters demanded the Committee of accounting would one check when Cy had to leave but shortly afterwards the Airport matter came up. As Commissioner Williams, of the Department of Public Works, strongly favored the bill and so no one opposed against it, it is believed that it will receive favorable consideration by the Committee.

Frank Leslie C. Crowley, who has made such a splendid flying record from the Boston Airport, is now temporarily on duty with the First Pursuit Group at Selfridge Field, Mich. Lieutenant Crowley is the only reserve officer in New England who has the distinction of being assigned to Selfridge Field for active duty with the First Pursuit Group.

Plane to Steer His Ashes

In his will, filed for probate in Newark, John R. Strommer, a salesman of that city, directed that his ashes be carried off in an airplane and scattered "over a large body of water." A notary at New York City, where the execution was directed to have the body cremated and "so that" said the ashes were to be taken over to Delaware W. Strommer, another son, who is to take them off and scatter them.

Fort Worth, Texas

By C. F. Dinkel

Fort Worth's flying savings won't reach 100,000 this year. Several firms have left these parts for other fields and their records cannot be obtained. The sum of the savings from those reached only amounts to 75,000. On account of the slow increase in traffic in the city some of the firms have moved positions in other parts, two of them going on the new road route this time. It would not be surprising to see quite a few of Fort Worth's firms leaving as those have always been a number of times this town, this city being

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their winter home.

Bob Arnold who has been twice flying for several years and who is a good one, has, according to rumors, been engaged by the National Air Transport Co.

We have at least one good leader in the person of our Mayor, H. C. Mosheim, he sports the badge of the N.A.A. and he has been largely instrumental in helping Fort Worth to get its landing field.

Col. William Mitchell came in on April 4, rather early but was not at the station by members of the Fort Worth Flying Club and escorted to the Texas Hotel where he performed to the delight of the day displaying the technique to three here around the city. All indications are that he will bring a big crowd at the audience where he is to speak on April 5.

United States Air Forces

Advanced Flying School

In the previous class of the Advanced Flying School at Kelly Field, Texas, which started with 96 students, one has been returned due to physical disability and 94 students are now in training.

On March 31, 43 students had progressed to solo and 33 had finished on dual flying. The class has as yet 20 solo students in their course of flying days since started at Kelly Field, in March 31, was the 18th working day of the course and during that period there were only 8 flying days, the other 10 days not being available for flying due to bad clouds with fog and rain. The present class at the school began with 20 officers of the Regular Army, two Marine Corps officers, one officer of the Argentine Army and 32 flying cadets. There are four special observation students and here for the first time in the Observation Air Corps. Owing to the small number of flying days, the present class averaged about 1.5 hr. per student the first week of training, forty students per student the second week and in the 38th day the student the third week. The class has been flying 11½ times the transfer of the 12th to the Attack Group.

Fading of the Jenny

The new class at the Primary Flying School, Brooks Field, San Antonio, Texas, started flying on Wednesday, March 25, each instructor having either five or six students. For the first time in the history of the Air Service, no Jenny was in use for the first time. Although the PT, which has replaced the famous Jenny in a good machine, there is a great deal of confusion and language among instructors for their old counterparts. In fact, a projected party in honor of the passing of the 20th class with only half-breded response, due to the soldiers of the country.

Dispatching Smallpox Serum by Plane

In response to an urgent request for delivery of smallpox serum to the town of Windsor, in East Windsor, where the Army could not otherwise have been made for a day or two, 1st Lt. James E. Duke, Jr., Air Service, of the San Antonio Air Intermediate Depot, carried a quantity of this serum by plane on February 25th to relieve the situation. Owing to the fact that there was no landing field at Windsor, the serum, which had been packed with great care in anticipation of this condition, was dropped from the plane and caused minor injury by the medical authorities of that town. The trip there and return was made in 2 hr. and 25 min.

Rain Making

Two B-1 airplanes were recently flown from Phillips Field, Aberdeen Proving Grounds, Md., to Hartford, Conn., where they will be used to conduct certain experiments in rain making.

May 3, 1936

ing and fog dispersal by Dr. L. Francis Warren. These two airplanes, which are fully equipped for the work at hand, were flown to Hartford by Major E. A. Johnson and Lieutenant Bernard Smith J. Davis.

Lord Louis N. K. A. S., on duty at Hartford as National Guard instructor, will accompany the Dr. Warren in these experiments, assisted by Sergeant Dero, who will be stationed at Hartford for several months.

Air Service Bombing

The War Department announces that the Air Service aerial machine gun and bombing schools will take place at Langley Field, Va., May 5, 1936. All units of the Army Air Service will be represented, as well as the U. S. Navy, Marine Corps, National Guard and National Guard.

The announcement states there will be one team from each headquarters, either parent, and observation squadron in the United States and Panama, two teams selected from officers on duty in the office of the Chief of Staff and from the Regular Army and observation squadrons. The National Guard will enter five teams, and there will be one team from each of the Corps Areas to represent the Organized Reserve.

Balloon Officers of the World War

More than 30 officers, reserve and former officers of the Balloon Section of the Army Air Service assembled at the second annual reunion and banquet of the organization in the Yale Club on Saturday, March 27. Similar reunions were held simultaneously for officers in the Middle West at St. Louis and officers in the West Coast at Los Angeles.

At the eastern dinner it was proposed to effect a permanent organization to perpetuate the traditions and ideals of all lighter-than-air officers in the World War. Of several plans of organization proposed the most favorably received was a suggestion that the national organization be patterned after the Society of the Century, also noted post-World-War organization, in which membership is calculated by the length of service of the original members. The interests of a nature and the details of organization were left to a committee to be named by Col. Charles de Chazelles and the permanent organization will be effected at the next annual dinner. Former balloon officers who are eligible should and their names in David G. Housman, 100 Nassau Street, New York City.

Crash Narrowly Averted

An unusual incident, which might easily have resulted in a serious crash, occurred at Kelly Field, Texas, on the afternoon of March 28. First Lt. D. D. Ford, pilot, with P. O. T. Ford and A. D. W. Ford, both of the Air Corps, were dropping-dropping parachutes from a Martin bomber. Three packs, with 200 lb. parachute attached, were suspended in the bomb racks of the plane and exploded to drop quickly. Parachute altimeters caused the first parachute to be released and when the second one was let go, it tore into the first one, tearing the pack from its attachment and leaving it suspended several feet below the fuselage. The second parachute remained in the pack. The top rope was now pulled out by the emergency pack, permitting the chute to open. A small explosion of gas was felt, the last parachute opened and the plane resumed its air and on a single of approximately 45 deg. The test was initiated at 1500 ft., and when the incident occurred the plane was rendered uncontrollable. The first parachute was the primary altimeter faster away from the plane. Approximately 600 ft. were lost before the plane was again under control. No damage was done beyond a small slip in one of the parachute packs.

Army Air Orders

Major Howard C. Burdison, A.S., ordered from assignment as duty as assistant military attaché, London, and will proceed to Washington, for temporary duty in office of Joint Chiefs of Staff, upon completion of which he will proceed to Langley Field.

Major Clarence L. Taylor, A.S., Fort Leavenworth, to Wash-

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PUBLISHER'S NEWS LETTER

Through the courtesy of the Imperial Airways, the News Letter is being written about the theoretical Handley Page air transport plane flying from Croydon, the terminal airport of London, to Le Bourget, the corresponding airport of Paris. Of course, the trip has been decided so often that the details of the route are well known. From the operation viewpoint, it may be of interest to know that on the day on which the trip is being made, Good Friday, three passengers were booked and three more "buses" took them from Heath Vickers to Croydon in exactly 30 minutes. A half dozen large air transport planes were ready for their travels, for a four day holiday was starting in London. English, French and Dutch aircraft could be seen, but it was not good fortune to occupy two of the fourteen seats in the big Handley Page. Although 60 per cent of the passengers of the Imperial Airways are women, there were only one other lady passenger besides our constant flying companion.

Butter as soon as we saw the two passengers to have modest discomfort but otherwise the passengers all seem to be enjoying the trip immensely. The usual flying altitude is about 1,500 to 2,000 ft. The air speed is around 100 m.p.h. but a 30 mile head wind is blowing so that the ground speed is comparatively slow. The speeds covered on a holiday consist principally of leisurely, a track or two being carried by roadless to land. Our own planes were generously carried as an added courtesy.

It is interesting to note the absolute lack of movement of the aircraft, the inherent stability of the plane, and the comparative quiet of the engine. Calm, in small containers, a provided, and much more. Attention and air speed indicators are in view at all times, so that these two points can be watched. It took about an hour to reach the English Channel which was crossed at less than a half hour. After another half hour, a sudden rain indicated that a landing was to be made although there were 125 more miles to be covered. A beautiful emergency landing field came up to meet us, all the passengers were glad to have the opportunity to take a short walk. The hotel was half an hour, about 100 miles to the usual route, and the pilot, Captain W. R. Hinkley, who, by the way, flies better with one eye than most fliers do.

with her, decided that Abbotsville was a good place to take on gas. A very primitive method required even an hour for the operation, but soon, we were again on our way and, at nearly one and a half, the great Aerodrome du Bourget, the largest in Europe, came in sight.

Regarding the first trip of what may be one of the longest air lines ever made, nothing but praise could be expressed. Naturally, we figured that such passenger required about 100 lbs. and made a few estimates as to the cost of the trip and made certain calculations as to the service, but it was of little practical value. In fact, one of the most recent statistics in Europe is the financial statement of the air line. This appears to be due to several obvious reasons. As all of the lines are given a subsidy, it is natural that they keep their accounts so that the government of the subsidy will be justified. If a European air line ever makes money, it will be known only to a very limited few. It could be such a shock to the public that it would not estimate to spend money even for air lines with the subsidies it does now. Each country has been reluctant to believe that so there are a great subsidy, a point which has been questioned in these pages very often. Here in Europe, however, the problem of air shipment and deliveries is so important that air lines are now becoming as important as the scheme of national defense as were the old military needs.

This appears at Croydon and Le Bourget are probably the most important in Europe, being in their operational character. They are, in a true sense, air terminals and represent well air transport facilities at their best. Croydon is being made into a permanent establishment with considerable new and break houses. Le Bourget is permanent new and has long houses which are used for various planes as well as storing them. Perhaps, if time and space will permit, a later News Letter will give some of the more specific details of the operation of airports which has been carried to a very high state of perfection. The latter, known as an air journey and indeed under the direction of Paris, may, by a disconnected narration, give some idea of the difficulties under which these airports are working. — L. D. G.

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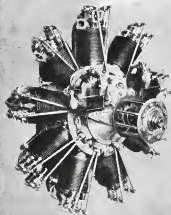
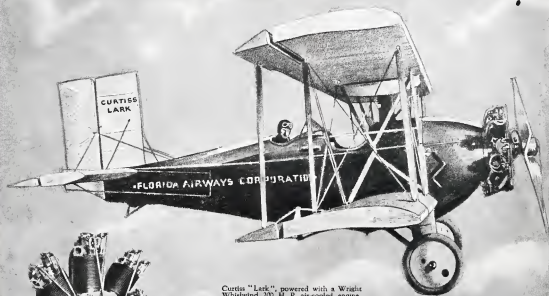
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